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Review

# Comparing domain- and facet-level relations of the HEXACO personality model with workplace deviance: A meta-analysis

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ABSTRACT

Personality research suggests that the prediction of organizational behavior can be improved by examining the criterion-related validity of narrow personality facets. In the current study, we provide meta-analytic effect size estimates ($k$ = 29) for the relations of all HEXACO domains and facets with workplace deviance and re-analyze available data ($k$ = 9) to compare the criterion-related validity of the HEXACO domains with that of their constituent facets. Findings provided evidence for a masking effect among the facets of Honesty-Humility and a cancellation effect among the facets of Openness to Experience. Furthermore, facets generally outperformed domains in predicting workplace deviance. This was most notable for the Fairness facet, which explained almost as much variance in workplace deviance as all six HEXACO domains combined. These results suggest that using a few HEXACO facets to predict workplace deviance can be more efficient than using all six broad domains.

## 1. Introduction

Workplace deviance (WD) poses a pervasive problem for organizations because of the vast detrimental consequences associated with it (for a review, see Appelbaum, Iaconi, Matousek, & Appelbaum, 2007). Previous studies revealed that WD can be predicted by several classes of predictors. For example, WD can be predicted using situational characteristics (e.g., Mitchell & Ambrose, 2007), individual differences (e.g., Berry, Ones, & Sackett, 2007; Ng, Lam, & Feldman, 2016; Pletzer, Oostrom, & Voelpel, 2017), or the interaction of both (e.g., Colbert, Mount, Harter, Witt, & Barrick, 2004). With respect to individual differences, the main focus has been on broad personality domains, but also on interactions of different traits (e.g., Jensen & Patel, 2011; Oh, Lee, Ashton, & De Vries, 2011), compound traits (e.g., the Dark Triad; Boyle, Forsyth, Banks, & Mcdaniel, 2012), and lower level facet traits (e.g., Hastings & O'Neill, 2009) as predictors of WD. The present study focuses on domain- and facet-level personality predictors of WD using the HEXACO model of personality.

Although broad personality domains, such as Honesty-Humility, Conscientiousness, or Agreeableness, are still among the most commonly used predictors of WD (Berry et al., 2007; Berry, Carpenter, & Barratt, 2012; Pletzer, Bentvelzen, Oostrom, & Vries, 2019; Salgado, 2002), the bandwidth-fidelity account (Cronbach & Gleser, 1957; Judge, Rodell, Klinger, Simon, & Crawford, 2013) suggests that narrow personality facets are better predictors of organizational behaviors than broad personality domains. According to this account, broad personality domains run the risk of obscuring differential relations at more specific levels (Tett, Steele, & Beauregard, 2003). Furthermore, according to the construct correspondence account (Fishbein & Ajzen, 1974), the most optimal criterion-related validity can be attained when researchers use a construct-oriented approach to match predictors to criteria (Hough & Furnham, 2003). Indeed, ample evidence indicates that narrow personality facets can outperform broad domains when predicting criteria in organizational contexts (Ashton, 1998; Ashton, Lee, & De Vries, 2014; Paunonen & Ashton, 2001). Yet, research has been scarce when it comes to systematically comparing the criterion-related validity of personality domains with that of facets for WD (Hastings & O'Neill, 2009; Morris, Burns, & Periard, 2015; Helle, DeShong, Lengel, Meyer, Butler, & Mullins-Sweatt, 2018). Furthermore, these few studies focused on the Big Five personality model, whereas considerable evidence has accumulated in favor of the HEXACO model as a more optimal conceptualization of the personality space (e.g., Ashton & Lee, 2007) and as a better predictor of WD (Pletzer et al., 2019). As the HEXACO model contains a sixth personality domain,

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named Honesty-Humility, that is better matched to WD than any of the Big Five domains, it is important to compare the criterion-related validities of the domains and facets of this alternative personality model. In the current study, we therefore aim to 1) meta-analytically examine the relations of all HEXACO domains and facets with WD, 2) provide a comparison of domain- and facet-level relations with WD, and 3) investigate which facets can be used to optimize the prediction of WD.

### 1.1. Workplace deviance and personality

WD, also known as counterproductive work behavior, is defined as voluntary behavior by employees that violates significant organizational norms and thereby harms the organization and/or its members (Bennett & Robinson, 2000). WD can be targeted toward the organization (i.e., organizational WD) and/or toward other individuals (i.e., interpersonal WD). Typical deviant behaviors at work include coming too late, stealing from the employer, or insulting coworkers. As such, it describes an important organizational behavior that poses a pervasive problem for organizations because of its detrimental consequences for organizational functioning on all levels (e.g., Dunlop & Lee, 2004; Sackett, 2002). Consequently, practitioners and researchers have made it a priority to predict and prevent the occurrence of WD, often using personality traits as predictors because of their relatively high criterion-related validity compared to other predictors (e.g., Berry et al., 2007; Salgado, 2002).

Personality is most commonly described using five broad domains (i.e., the Big Five or Five-Factor Model): Openness, Conscientiousness, Extraversion, Agreeableness, and Emotional Stability (or Neuroticism) (Goldberg, 1990; McCrae & Costa, 1992). However, re-analyses of lexical data suggest that personality may be more accurately described using six cross-culturally replicable domains (Ashton et al., 2004; Ashton et al., 2014). The most common conceptualization of such a six-dimensional personality framework is the HEXACO model (Ashton & Lee, 2007), which describes personality using the following six broad domains that form the HEXACO acronym: Honesty-Humility, Emotionality, eXtraversion, Agreeableness, Conscientiousness, and Openness to Experience. The HEXACO, just like the Big Five, is hierarchically organized, but differs from the Big Five in several aspects (see Lee & Ashton, 2004, 2018, for a detailed discussion). Two major differences are that it adds a sixth domain called Honesty-Humility, which reflects the tendency to be genuine and fair in dealing with others, and that some facets are shifted from one domain to another (e.g., Sentimentality from Big Five Agreeableness to HEXACO Emotionality). Each of the six broad HEXACO domains contains four facets, amounting to 24 facets in total. Altruism is included as a 25th interstitial facet because of the importance of behaviors associated with this trait for social functioning (K. Lee & Ashton, 2018); this facet loads on Honesty-Humility, Emotionality, and Agreeableness.

So far, researchers have mostly focused on the broad Big Five or HEXACO domains —instead of its facets—as predictors of WD (see Pletzer et al., 2019, for an overview), likely because these broad domains pair parsimony with relatively high criterion-related validity. For the HEXACO, especially Honesty-Humility, Conscientiousness, Agreeableness, and, to a lesser extent, Emotionality predict WD (Lee, Ashton, & De Vries, 2005; O'Neill, Lewis, Carswell, & O'Neill, 2011; Pletzer et al., 2019), and, when using these broad domains, the HEXACO model outperforms the Big Five model when predicting WD (Lee, Ashton, & De Vries, 2005; Pletzer et al., 2019). However, until now, researchers and practitioners have mostly disregarded the relations between HEXACO personality facets and WD.

For the Big Five, Hastings and O'Neill (2009) compared the criterion-related validity of domains with that of their constituent facets. They demonstrated that by examining the relations between broad Big Five domains and WD important facet-criterion relations are obscured. For example, Extraversion itself was not significantly correlated with WD, whereas the Excitement Seeking facet of Extraversion correlated positively and the Friendliness facet of Extraversion negatively with WD. In addition, their results demonstrated that a few facets can account for almost the same amount of variance in WD as broad domains, suggesting that the use of facets is more efficient and might also be more defensible in selection contexts because of their higher conceptual overlap with the criterion.

For the HEXACO, only a few studies have examined some of the facet-level relations, mostly comparing the criterion-related validity of Honesty-Humility with those of its facets: O'Neill et al. (2011) showed that the Fairness facet exhibited a stronger relation with WD than Honesty-Humility, and Ashton et al. (2014) even demonstrated that the Fairness facets predicts unique variance in WD over and above Honesty-Humility. In addition, Anglim, Lievens, Everton, Grant, and Marty (2018) found that, for WD, the criterion-related validity of all facets combined was higher than that of all broad domains. However, these studies focused mostly on the relations of Honesty-Humility with WD and did not systematically compare the criterion-related validity of all HEXACO domains with that of their constituent facets. Importantly, many more studies have been conducted that measured facet-level relations but did not analyze them. The present study is the first to synthesize all these available studies.

### 1.2. Current study

In line with these initial findings, three main reasons necessitate a more systematic examination of the criterion-related validity of narrow HEXACO facets for WD. First, as argued above, facets grouped within one domain might exhibit differential relations with WD, possibly even masking or cancelling each other out (Hastings & O'Neill, 2009; Tett & Christiansen, 2007). A full masking effect would exist if 1) the correlation of the domain with WD is significantly smaller than the correlation of one facet with WD (i.e., $r_{d\text{-}WD} < r_{f1\text{-}WD}$), 2) significantly larger than the correlation of another facet with WD (i.e., $r_{d\text{-}WD} > r_{f2\text{-}WD}$), and if the correlation for the first facet with WD is significantly larger than that of the second facet with WD (i.e., $r_{f1\text{-}WD} > r_{f2\text{-}WD}$) (where d = domain, f1 = facet 1, and f2 = facet 2). A full cancellation effect would exist if the domain does not significantly correlate with WD, whereas one of its constituent facets significantly correlates positively and one negatively with WD. Investigating such masking and cancellation effects will further improve our understanding of the relations of the HEXACO domains and facets with WD and of the grouping of facets within their respective domain more generally.

Second, some facets show higher conceptual resemblance with the criterion, making it easier to predict relations (Schneider, Hough, & Dunnette, 1996). For example, Ashton (1998) showed that the theoretically relevant facets of responsibility and risk taking were better predictors of WD than the broad domains Conscientiousness and Agreeableness. For the HEXACO, the Fairness facet of the Honesty-Humility domain, which describes the tendency to avoid fraudulent behavior, overlaps more with the description of WD as norm-violating behavior in an organizational context than the Modesty facet, which assesses the tendency to be modest and unassuming. The Fairness facet should therefore correlate stronger with WD than the Modesty facet. To systematically examine and compare all facet-level relations with WD, we will provide meta-analytic effect size estimates for the relations of all HEXACO domains and facets with WD.

Third, the use of facets to predict WD might be more efficient than the use of broad domains because fewer items are necessary to measure one facet than one domain. We will therefore estimate which facets can explain the maximum amount of variance in WD and which facets can explain similar amounts of variance in WD as the six broad domains. Results of these analyses will be especially relevant for researchers and practitioners trying to minimize testing times while retaining relatively high levels of criterion-related validity, ultimately increasing the utility of personality questionnaires. To answer this research question, we will conduct several meta-analytic linear regressions using all available

datasets that measure all HEXACO facets and WD. This will provide a high-powered test of the criterion-related validity of the HEXACO facets for WD compared to that of the broad domains.

## 2. Method

### 2.1. Literature search & inclusion criteria

We conducted a literature search on Web of Science in June 2019, using *HEXACO*, *Honesty-Humility*, and *Counterproductive Work Behavior* or *Workplace Deviance* as keywords. The search returned 29 results, which were all inspected in full. Fifteen articles met our inclusion criteria (see below). We identified and included six additional articles by manually searching Google Scholar and by examining included studies of other relevant meta-analysis (Lee, Berry, & Gonzalez-Mulé, 2019; Pletzer et al., 2019). Because most articles did not report facet-level correlations, we contacted all authors and requested all facet-level correlations with WD or the dataset as well as unpublished studies, which resulted in two additional included articles (Barends, De Vries, & Van Vugt, 2018; Pletzer, Oostrom, & Voelpel, 2015), resulting in a grand total of 23 included articles.

For a study to be included in the current meta-analysis, the following criteria had to be met. First, personality had to be measured using the 100- or 200-item HEXACO inventory (Ashton & Lee, 2007; Lee & Ashton, 2018) to be included for the facet-level relations. We excluded studies that used the 60-item HEXACO measure from the facet-level analyses (e.g., Chirumbolo, 2015; Wiltshire, Bourdage, & Lee, 2014) because this measure is not intended for the measurement of facets, but included data from those studies for the domain-level relations. Second, WD had to be measured as an overarching construct on an individual level (e.g., using the Bennett & Robinson, 2000, measure). Included studies had to provide the correlation coefficient *r* between at least one HEXACO domain or facet and WD along the respective sample size *N*, or statistics that allow for the computation of *r*, such as standardized regression coefficients (*ß*). Whenever such information was missing, we requested zero-order correlations for the relations of interest from the authors.

Applying these criteria, 29 studies from 23 articles were included in the meta-analytic part of the current manuscript (see Table 1 for an overview). Of these 29 studies, 27 reported correlations of Honesty-Humility and eighteen reported correlations of the other five domains with overall WD. For the facets, the number of included correlations ranged between nine and sixteen. The included articles were published (or conducted for unpublished studies) between 2005 and 2018. All effect sizes were independently coded by the first and the third author, resulting in agreement of almost 97%. All inconsistencies were resolved after discussion. All codings can be found in the dataset on the Open Science Framework webpage for this study: https://osf.io/9dtju/?view_only=3bde4b96ff3846eeae0eb2e873f55f99

### 2.2. Data analyses

#### 2.2.1. Meta-Analyses

We based our meta-analyses on the Pearson correlation coefficient *r*. Analyses were conducted using the *metafor* package in *R* (Viechtbauer, 2010) with a random-effects model using the Hunter-Schmidt approach (Hunter & Schmidt, 2014). We report sample size weighted correlations and correlations corrected for unreliability in the predictor and in the outcome (Spearman, 1904). Whenever studies did not report internal reliabilities (i.e., Cronbach's alpha values), we corrected these correlations with the average reliability estimates across all other studies for this specific predictor or outcome (this was only the case for correlations from one study; O'Neill et al., 2011). We calculated composite correlations and reliabilities for overall workplace deviance whenever a study only reported correlations separately for interpersonal and organizational workplace deviance (Hunter & Schmidt, 2014). For all effect size estimates, we report 95% confidence and 80% credibility intervals. We also report the percentage of observed variance due to artifacts (Hunter & Schmidt, 2014). A percentage above 75% indicates the existence of moderators. To assess homogeneity in effect sizes, we report *tau* and an $I^2$ index using the Hunter and Schmidt (2014) estimator. *Tau* is an estimate of the standard deviation of the distribution of true effect sizes, and it is used to calculate prediction intervals (Borenstein, Hedges, Higgins, & Rothstein, 2009). $I^2$ indicates the proportion of observed variance due to real differences between effect sizes, rather than chance: Values higher than 75% can be considered high (Higgins, Thompson, Deeks, & Altman, 2003).

We tested for publication bias using different indicators. First, the regression intercept (Egger, Davey Smith, Schneider, & Minder, 1997) and the rank correlation test (Begg & Mazumdar, 1994) examine funnel plot asymmetry (i.e., if the precision of included studies and their effect sizes correlate significantly). A significant result indicates a possible publication bias. Specifically, a negative relation between study precision and effect sizes would indicate a publication bias because small studies are only statistically significant when they overestimate the true effect size, whereas large studies are published without such overestimation. Second, we conducted *p*-curve analyses (Simonsohn, Nelson, & Simmons, 2014; Simonsohn, Simmons, & Nelson, 2015) that map the distribution of statistically significant *p*-values for a given relation using the online app located at www.p-curve.com. Right-skewed *p*-curves indicate evidential value and the absence of a publication bias; left-skewed *p*-curves (with more *p*-values near the alpha value; here .05) indicate a possible publication bias or possible *p*-hacking. We report the *p*-value for a binomial test for a right-skewed *p*-curve and the *p*-value for a half *p*-curve test. For both tests, $p < .05$ indicates evidential value and the absence of a publication bias.

To examine masking effects, we used Robust Variance Estimation (RVE) meta-regressions that can account for dependent effect sizes (Hedges, Tipton, & Johnson, 2010; Tanner-Smith & Tipton, 2014). Because correlations are nested within studies and because domain- and facet-level measurements are dependent, we employed correlated effects RVE with random-effect weights and small sample adjustments (Tipton, 2015). These analyses were conducted using the *robumeta* package in *R* with rho = 0.80 (Tanner-Smith & Tipton, 2014).[1] We used dummy coded variables in which we compared the corrected correlations between domains and facets or between facets of one domain (e.g., 0 = Honesty-Humility, 1 = Sincerity or 0 = Sincerity, 1 = Fairness). A masking effect would be present if $r_{d\text{-}WD} < r_{f1\text{-}WD}$, $r_{d\text{-}WD} > r_{f2\text{-}WD}$, and $r_{f1\text{-}WD} > r_{f2\text{-}WD}$ (where d = domain, f1 = facet 1, and f2 = facet 2). A cancellation effect would be present if the domain does not significantly correlate with WD, while one facet correlates positively and one negatively with WD.

We also conducted several exploratory moderator analyses using a mixed-effects model (i.e., interpersonal versus organizational WD, 100- versus 200-item measure, one versus multiple measurement points). We report moderator analyses on all 24 facets combined as an estimate of the mean strength of correlations across different levels of the moderator[2] and individually for each domain and facet.[3]

#### 2.2.2. Meta-analytic linear regressions

We acquired datasets for nine studies that measured all HEXACO-PI-R domains and facets as well as WD (Barends et al., 2018; Bourdage et al., 2018; De Vries et al., 2014; De Vries & Van Gelder, 2015; Pletzer

[1] We also report the meta-analytic results using RVE in the supplementary materials. None of the conclusions change.

[2] These moderator analyses violate the assumption of independent observations and should therefore be interpreted with caution.

[3] Two articles (Louw et al., 2016; Thompson et al., 2016) only included interpersonal or organizational WD as outcomes and are therefore only included in the moderator analyses (see Table 1 and supplementary materials).

**Table 1**
Overview of included studies in the meta-analysis.

| # | Study | *N* | Included domains/ facets | Outcomes | Time Points | Items | WD Q | Age | %Women | Included in Regressions |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Anglim et al. (2018) Applicant Sample | 260 | All domains & facets | WD, ID, OD | Two | 32 | B&R | 41.88 | 69.0 | Yes |
| 2 | Anglim et al. (2018) Non-Applicant Sample | 347 | All domains & facets | WD, ID, OD | Two | 32 | B&R | 50.71 | 40.0 | Yes |
| 3 | Ashton et al. (2014) | 266 | All domains & facets | WD | One | 32 | Other | 20.00 | 62.0 | No |
| 4 | Barends et al. (2018) | 239 | All domains & facets | WD, ID, OD | Two | 32 | B&R | 40.10 | 60.3 | Yes |
| 5 | Bourdage, Goupal, Neilson, Lukacik, and Lee (2018) Employee Sample | 206 | All domains & facets | WD, ID, OD | One | 16 | B&R | 45.60 | 51.5 | Yes |
| 6 | Bourdage et al. (2018) Student Sample | 160 | All domains & facets | WD, ID, OD | Two | 16 | B&R | 20.61 | 80.0 | Yes |
| 7 | Catano, O'Keefe, Francis, and Owens (2018) | 388 | Only HH | WD | One | 16 | Other | – | 17.0 | No |
| 8 | Ceschi, Sartori, Dickert, and Costantini (2016) | 208 | Only HH | WD | One | 10 | Other | 40.73 | 63.0 | No |
| 9 | Chirumbolo (2015) | 203 | All domains | WD | One | 10 | Other | 41.41 | 53.7 | No |
| 10 | Cohen, Panter, Turan, Morse, and Kim (2013) | 1325 | All domains | WD | Two | 10 | Other | – | – | No |
| 11 | De Vries and Van Gelder (2015) | 455 | All domains & facets | WD | Two | 32 | Other | 45.56 | 45.3 | Yes |
| 12 | De Vries, De Vries, Born, and Van den Berg (2014) | 238 | All domains & facets | WD | One | 32 | – | 32.87 | 47.9 | Yes |
| 13 | Goffin and Spring (2016) | 198 | Only HH & its facets | WD | One | 16 | B&R | 34.83 | 46.46 | No |
| 14 | Gok et al. (2017) Turkish Sample | 339 | Only HH | WD, ID, OD | One | 16 | Mixed | 33.08 | 34.0 | No |
| 15 | Gok et al. (2017) US Sample | 409 | Only HH | WD, ID, OD | One | 16 | Mixed | 31.16 | 45.0 | No |
| 16 | Lee, Ashton, and Shin (2005) Study 1 | 106 | All domains | WD | One | 18 | Other | 26.40 | 45.3 | No |
| 17 | Lee, Ashton, and De Vries (2005) Study 2 | 128 | All domains | WD | One | 18 | Other | 21.00 | 64.1 | No |
| 18 | Lee, Ashton, and De Vries (2005) Study 3 | 179 | All domains | WD | One | 18 | Other | 20.70 | 55.9 | No |
| 19 | Lee, Ashton, and Shin (2005) | 267 | All domains | WD, ID, OD | One | – | B&R | 37.60 | 50.0 | No |
| 20 | Louw, Dunlop, Yeo, and Griffin (2016) | 114 | All domains & facets | OD | One | 16 | B&R | 30.34 | 52.6 | No |
| 21 | Marcus, Lee, and Ashton (2007) Canadian Sample | 169 | All domains & facets | WD | One | 16 | Other | 21.53 | 74.3 | No |
| 22 | Marcus et al. (2007) German Sample | 498 | All domains & facets | WD | One | 16 | Other | 36.93 | 57.8 | No |
| 23 | O'Neill and Steel (2018) | 675 | Only HH & its facets | WD | One | 32 | Other | 29.00 | 49.0 | No |
| 24 | O'Neill et al. (2011) | 464 | Only HH & its facets | WD, ID, OD | One | 16 | B&R | – | – | No |
| 25 | Pletzer, Oostrom, and Voelpel (2015) | 519 | All domains & facets | WD, ID, OD | One | 16 | B&R | 36.43 | 51.6 | Yes |
| 26 | Schneider and Goffin (2012) | 213 | Only HH & its facets | WD | One | 16 | B&R | 18.77 | 56.8 | No |
| 27 | Thompson, Carlson, Hunter, and Whitten (2016) | 328 | Only HH | ID | One | 10 | B&R | 39.11 | 48.0 | No |
| 28 | Wiltshire et al. (2014) | 268 | All domains | WD | One | 10 | B&R | 40.26 | 50.7 | No |
| 29 | Zettler and Hilbig (2010) | 148 | All domains & facets | WD, ID, OD | One | 16 | B&R | 35.40 | 48.0 | Yes |

*Note.* *N* = sample size; WD = overall workplace deviance, ID = interpersonal workplace deviance, OD = organizational workplace deviance; Time Points = number of measurement points; HEXACO items = number of items used to assess one HEXACO personality domain; WD Q = questionnaire used to assess workplace deviance; B&R = Bennett and Robinson's (2000) workplace deviance measure; Other = Other workplace deviance questionnaires (i.e., Ashton, 1998; Kelloway et al., 2002; Koopmans et al., 2012; Spector et al., 2006; Stewart et al., 2009); Mixed = mix of different questionnaires; Age = average age of the sample; % Women = percentage of women in the sample.

et al., 2015; Zettler & Hilbig, 2010; Anglim et al., 2018) and merged them into one overall dataset.[4] This final dataset consisted of 2570 participants with an average age of 39.39 years (*SD* = 12.35 years). Of these participants, 53.2% were women and 46.8% were men.[5] Please see Table 1 for an overview of descriptive statistics per included study.

Among the studies that measured all HEXACO domains and facets ($k = 9$), four studies used one measurement point ($N = 1111$) and five studies used two measurement points to separate the measurement of personality and WD in time ($N = 1461$). Four studies used the 100-item HEXACO measure ($N = 1033$) and five studies used the 200-item HEXACO measure ($N = 1539$).[6] WD was most commonly measured with the Bennett and Robinson questionnaire ($k = 7$, $N = 1879$; 2000). We used the final merged dataset to conduct multiple linear regressions to estimate the amount of explained variance in WD. To supplement these regression analyses, we also conduct relative weights analyses (RWA) to gain a better understanding of the relative contribution of each predictor to the amount of explained variance in WD (Tonidandel & LeBreton, 2011).

## 3. Results

### 3.1. Meta-Analyses

The detailed meta-analytic results for the relations between all HEXACO domains and facets and WD are presented in Table 2. Among the domains, Honesty-Humility exhibited the strongest relation with WD ($\rho = -0.420$), followed by Conscientiousness ($\rho = -0.391$), Agreeableness ($\rho = -0.206$), Emotionality ($\rho = -0.091$), and Extraversion ($\rho = -0.087$). Openness to Experience did not correlate significantly with WD. These results are largely in line with previous meta-analytic effect size estimates (Pletzer et al., 2019).

Among the Honesty-Humility facets, Fairness ($\rho = -0.519$) exhibited the strongest correlation with WD. Sincerity ($\rho = -0.358$), Modesty ($\rho = -0.295$), and Greed Avoidance ($\rho = -0.249$) all exhibited negative relations with WD as well. For Emotionality, only Fearfulness ($\rho = -0.112$) and Sentimentality ($\rho = -0.189$) correlated significantly with WD. Anxiety ($\rho = -0.011$) and Dependence ($\rho = -0.008$) showed no relation with WD. A similar picture emerged among the Extraversion facets: Social Self-Esteem ($\rho = -0.248$) and Liveliness ($\rho = -0.179$) correlated negatively with WD, while Social Boldness ($\rho = -0.018$) and Sociability ($\rho = -0.009$) did not correlate with WD.[7] The relations of the Agreeableness facets with WD are

[4] We also received one additional dataset (Marcus et al., 2007) but did not include it in the merged dataset because it contained the old and now removed Expressiveness facet of the Extraversion domain.

[5] Age data is based on $N = 1657$ and gender data is based on $N = 2332$ because some datasets contained only categorical measures or did not contain this information at all.

[6] Most of the studies with one measurement point used the 100-item HEXACO measure ($k = 3$, $N = 873$), whereas only one of those studies used the 200-item HEXACO measure ($N = 238$). For studies with two measurement points, this was exactly reversed: Most of them used the 200-item HEXACO measure ($k = 4$, $N = 1301$) and only one study used the 100-item HEXACO measure ($N = 160$). This creates a possible confound when analyzing the moderating effect of the number of measurement points and of the number of items used to measure the HEXACO traits.

[7] The Expressiveness facet ($\rho = 0.154$), which was only part of earlier

**Table 2**
Meta-analytic results of the relations between HEXACO-PI-R domains/facets and workplace deviance.

| | Overall effect size | | | | | | | | | Heterogeneity | | Publication bias | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *k* | *N* | *r* | SE*r* | ρ | SEρ | %Var | 95% CI | 80% CrI | *T* | $I^2$ | $Rank_p$ | $Reg_p$ | $Bi_p$ | $Half_p$ |
| **Honesty-humility** | 27 | 8875 | −0.348 | 0.027 | −0.420 | 0.032 | 14.86 | −0.483, −0.358 | −0.619, −0.221 | 0.152 | 87.46 | 0.620 | 0.925 | < 0.001 | < 0.001 |
| Sincerity | 16 | 5055 | −0.277 | 0.022 | −0.358 | 0.026 | 45.56 | −0.409, −0.307 | −0.460, −0.255 | 0.076 | 56.63 | 0.626 | 0.070 | < 0.001 | < 0.001 |
| Fairness | 16 | 5055 | −0.424 | 0.015 | −0.519 | 0.020 | 75.73 | −0.558, −0.480 | −0.590, −0.447 | 0.052 | 45.75 | 0.228 | 0.111 | < 0.001 | < 0.001 |
| Greed avoidance | 16 | 5055 | −0.207 | 0.014 | −0.249 | 0.016 | 100.00 | −0.281, −0.218 | −0.270, −0.229 | 0.000 | 0.00 | 0.506 | 0.612 | < 0.001 | < 0.001 |
| Modesty | 16 | 5055 | −0.232 | 0.021 | −0.295 | 0.024 | 50.82 | −0.342, −0.247 | −0.385, −0.205 | 0.066 | 49.23 | 0.825 | 0.425 | < 0.001 | < 0.001 |
| **Emotionality** | 18 | 5714 | −0.075 | 0.026 | −0.091 | 0.031 | 29.80 | −0.152, −0.030 | −0.235, 0.053 | 0.108 | 71.55 | 0.131 | 0.091 | 0.003 | 0.034 |
| Fearfulness | 12 | 3505 | −0.086 | 0.022 | −0.112 | 0.029 | 64.45 | −0.168, −0.055 | −0.200, −0.023 | 0.063 | 40.39 | 0.947 | 0.965 | 0.188 | 0.017 |
| Anxiety | 12 | 3505 | −0.008 | 0.029 | −0.011 | 0.037 | 37.60 | −0.084, 0.061 | −0.148, 0.125 | 0.100 | 64.04 | 0.311 | 0.169 | 0.750 | 0.006 |
| Dependence | 12 | 3505 | −0.006 | 0.021 | −0.008 | 0.027 | 66.76 | −0.060, 0.045 | −0.084, 0.069 | 0.054 | 34.34 | 0.381 | 0.202 | – | – |
| Sentimentality | 12 | 3505 | −0.147 | 0.020 | −0.189 | 0.026 | 78.26 | −0.240, −0.139 | −0.259, −0.120 | 0.048 | 29.29 | 0.545 | 0.226 | 0.004 | < 0.001 |
| **Extraversion** | 18 | 5714 | −0.076 | 0.029 | −0.087 | 0.033 | 24.05 | −0.151, −0.024 | −0.241, 0.067 | 0.116 | 75.56 | 0.175 | 0.105 | 0.063 | < 0.001 |
| Social self-esteem | 9 | 2572 | −0.201 | 0.039 | −0.248 | 0.044 | 26.96 | −0.334, −0.162 | −0.397, −0.099 | 0.108 | 70.77 | 0.359 | 0.004 | 0.008 | < 0.001 |
| Social boldness | 12 | 3505 | −0.016 | 0.034 | −0.018 | 0.042 | 27.92 | −0.100, 0.064 | −0.184, 0.148 | 0.123 | 74.03 | 0.947 | 0.664 | 0.875 | < 0.001 |
| Sociability | 12 | 3505 | −0.007 | 0.024 | −0.009 | 0.030 | 54.94 | −0.068, 0.050 | −0.106, 0.088 | 0.069 | 46.14 | 0.459 | 0.484 | 0.750 | 0.193 |
| Liveliness | 12 | 3505 | −0.146 | 0.029 | −0.179 | 0.033 | 35.43 | −0.244, −0.115 | −0.298, −0.061 | 0.086 | 59.50 | 0.459 | 0.354 | 0.031 | < 0.001 |
| Expressiveness | 3 | 933 | 0.119 | 0.033 | 0.154 | 0.063 | 100.00 | 0.032, 0.277 | 0.034, 0.275 | 0.071 | 42.37 | 0.999 | 0.251 | 0.500 | 0.005 |
| **Agreeableness** | 18 | 5714 | −0.174 | 0.020 | −0.206 | 0.022 | 51.23 | −0.250, −0.163 | −0.290, −0.123 | 0.061 | 46.48 | 0.454 | 0.544 | < 0.001 | < 0.001 |
| Forgivingness | 12 | 3505 | −0.100 | 0.018 | −0.126 | 0.021 | 96.84 | −0.167, −0.085 | −0.153, −0.099 | 0.000 | 0.00 | 0.947 | 0.929 | 0.313 | 0.011 |
| Gentleness | 12 | 3505 | −0.159 | 0.025 | −0.209 | 0.030 | 47.13 | −0.267, −0.151 | −0.304, −0.114 | 0.068 | 45.09 | 0.381 | 0.414 | 0.004 | < 0.001 |
| Flexibility | 12 | 3505 | −0.176 | 0.022 | −0.248 | 0.028 | 59.95 | −0.303, −0.194 | −0.325, −0.172 | 0.053 | 30.56 | 0.063 | 0.137 | 0.002 | < 0.001 |
| Patience | 12 | 3505 | −0.150 | 0.026 | −0.195 | 0.033 | 45.81 | −0.259, −0.130 | −0.311, −0.079 | 0.084 | 56.06 | 0.311 | 0.096 | 0.035 | < 0.001 |
| **Conscientiousness** | 18 | 5714 | −0.328 | 0.028 | −0.391 | 0.031 | 23.83 | −0.452, −0.329 | −0.541, −0.240 | 0.113 | 78.88 | 0.201 | 0.030 | < 0.001 | < 0.001 |
| Organization | 12 | 3505 | −0.249 | 0.030 | −0.310 | 0.035 | 35.13 | −0.378, −0.242 | −0.441, −0.179 | 0.096 | 66.79 | 0.063 | 0.006 | 0.006 | < 0.001 |
| Diligence | 12 | 3505 | −0.284 | 0.035 | −0.364 | 0.040 | 24.12 | −0.442, −0.285 | −0.522, −0.205 | 0.117 | 74.70 | 0.638 | 0.039 | 0.003 | < 0.001 |
| Perfectionism | 12 | 3505 | −0.164 | 0.024 | −0.224 | 0.033 | 57.77 | −0.289, −0.159 | −0.337, −0.111 | 0.082 | 52.35 | 0.459 | 0.539 | 0.035 | < 0.001 |
| Prudence | 12 | 3505 | −0.288 | 0.033 | −0.376 | 0.036 | 30.55 | −0.447, −0.305 | −0.515, −0.237 | 0.102 | 68.50 | 0.459 | 0.013 | 0.019 | < 0.001 |
| **Openness to experience** | 18 | 5714 | −0.054 | 0.030 | −0.062 | 0.035 | 21.82 | −0.130, 0.005 | −0.228, 0.103 | 0.125 | 77.63 | 0.330 | 0.055 | 0.254 | < 0.001 |
| Aesthetic appreciation | 12 | 3505 | −0.114 | 0.027 | −0.145 | 0.033 | 41.74 | −0.210, −0.080 | −0.262, −0.028 | 0.085 | 57.10 | 0.197 | 0.092 | 0.344 | < 0.001 |
| Inquisitiveness | 12 | 3505 | −0.025 | 0.027 | −0.031 | 0.034 | 42.50 | −0.098, 0.036 | −0.152, 0.090 | 0.088 | 57.78 | 0.311 | 0.019 | 0.500 | < 0.001 |
| Creativity | 12 | 3505 | −0.040 | 0.036 | −0.049 | 0.046 | 23.78 | −0.139, 0.042 | −0.234, 0.137 | 0.137 | 76.41 | 0.841 | 0.404 | 0.031 | 0.075 |
| Unconventionality | 12 | 3505 | 0.075 | 0.037 | 0.111 | 0.053 | 22.20 | 0.006, 0.215 | −0.108, 0.329 | 0.162 | 79.65 | 0.841 | 0.428 | 0.109 | < 0.001 |
| Altruism | 9 | 2571 | −0.332 | 0.039 | −0.422 | 0.047 | 26.65 | −0.513, −0.330 | −0.588, −0.256 | 0.121 | 76.82 | 0.920 | 0.688 | 0.002 | < 0.001 |

*Note.* *k* = cumulative number of studies; *N* = cumulative sample size; *r* = sample size weighted meta-analytic correlation; SE*r* = standard error for *r*; ρ = meta-analytic correlation corrected for unreliability; SEρ = standard error for ρ; %Var = percentage of variance attributable to unreliability; 95% CI = 95% confidence interval for ρ; 80% CrI = 80% credibility interval for ρ; *p* = p-value for ρ; *T* and $I^2$ = indices of heterogeneity for ρ; $Rank_p$ = *p*-value for the rank correlation test of funnel plot asymmetry using ρ; $Reg_p$ = *p*-value for the regression test of funnel plot asymmetry using ρ; $Bi_p$ = *p*-value for the binomal test of a *p*-curve analysis; $Half_p$ = *p*-value for a half *p*-curve test; $Bi_p$ and $Half_p$ could not be calculated for Dependence because $p > .05$ for all included studies.

consistently negative: Flexibility (ρ = −0.248), Gentleness (ρ = −0.209), Patience (ρ = −0.195), and Forgivingness (ρ = −0.126) all exhibited negative correlations with WD. The same holds for the Conscientiousness facets: Prudence (ρ = −0.376), Diligence (ρ = −0.364), Organization (ρ = −0.310), and Perfectionism (ρ = −0.224) all correlated negatively with WD. For Openness to Experience, which did not correlate significantly with WD, two of the facets showed a significant relation with WD: Unconventionality (ρ = 0.111) correlated positively with WD, whereas Aesthetic Appreciation correlated negatively with WD (ρ = −0.145). The other two facets, Inquisitiveness (ρ = −0.031) and Creativity (ρ = −0.049), did not correlate significantly with WD. It is also worth noting that the Fairness facet demonstrated the strongest correlation with WD (ρ = −0.519) out of all facets, followed by Prudence (ρ = −0.376), Diligence (ρ = −0.364), and Sincerity (ρ = −0.358). The interstitial facet Altruism exhibited a strong relation with WD as well (ρ = −0.422).

A masking effect was observed for the facets of Honesty-Humility: The correlation for this domain was significantly more negative than the correlation for the facets Greed Avoidance and Modesty, and significantly less negative than the correlation for the Fairness facet (see supplementary materials). No cancellation effects among the facets were observed for Honesty-Humility, Emotionality, Extraversion, Agreeableness, and Conscientiousness. Only the Aesthetic Appreciation (ρ = −0.145) and the Unconventionality (ρ = 0.111) facets of Openness to Experience cancelled each other out. The correlation for Fairness was also significantly less negative than the correlations for Greed Avoidance and Modesty. As such, Fairness and Greed Avoidance/Modesty masked each other[8]. A masking effect was not observed for any other domains and facets.

#### 3.1.1. Publication bias analyses

The regression intercept and rank correlation test for funnel plot asymmetry were nonsignificant for most of the domain- and facet-level correlations with WD. Only the Organization facet showed signs of publication bias ($Egger_p$ = 0.063; $B\&M_p$ = 0.006). The *p*-curve binomial and half-curve tests were statistically significant for most domains and facets, suggesting evidential value and an absence of a publication bias. Only the results for the Sociability facet indicated no evidential value and a possible publication bias. However, note that these few significant findings may be false positives because the publication bias analyses generally demonstrate that the current meta-analytic results were not strongly influenced by a publication bias.

#### 3.1.2. Exploratory meta-analytic moderator analyses

We also examined the moderating effect of three different study characteristics: 1) interpersonal or organizational WD, 2) the 60-, 100-item or 200-item HEXACO measure, and 3) one or two measurement points. The detailed results of these analyses can be found in the supplementary materials.

Across all 24 facets combined, interpersonal and organizational WD did not exhibit differential correlations (see supplementary materials). Interpersonal and organizational WD also did not correlate differently with any of the six HEXACO domains, although a trend was observed for Conscientiousness, which correlated slightly stronger with organizational (ρ = −0.437) than with interpersonal WD (ρ = −0.316). The Diligence facet also exhibited a stronger correlation with organizational WD (ρ = −0.450) than with interpersonal WD (ρ = −0.286). The Patience facet of the Agreeableness domain correlated stronger with interpersonal (ρ = −0.303) than with organizational WD (ρ = −0.211). These findings are generally in line with previous findings for the Big Five showing that Conscientiousness correlates more strongly with organizational WD and Agreeableness more strongly with interpersonal WD (Berry et al., 2007; Pletzer et al., 2019), but indicate that these differential relations are mostly driven by the Diligence and Patience facets.

The average strength of the correlations did not depend on the length of the employed HEXACO measure for all six domains combined. The same was the case for all 24 facets combined. The length of the employed HEXACO measure did, however, moderate the relations of some HEXACO domains and facets with WD. The relations for the 60-item measure differed notably from the relations for the 100- or 200-item measure for Agreeableness (weaker) and Openness to Experience (stronger), whereas the relation for the 100-item measure was significantly more negative compared to the relations for the 60- and 200-item measure for Emotionality. For the facets, we only included studies using the 100- or 200-item HEXACO measure. Altruism showed a stronger relation with WD when the 100-item measure was used, Sincerity and Gentleness correlated more strongly with WD when the 200-item measure was used, and the correlations for Anxiety even differed in direction, although both were non-significant. The relations of all other domains and facets with WD did not differ depending on the length of the HEXACO measure. The few significant findings for this moderator analyses may again be false positives as no consistent pattern emerged for the moderation effect of the length of the HEXACO measure.

Across all 24 facets combined, correlations were notably stronger if personality and WD were measured at the same point in time compared to when their measurement was separated in time. This difference in correlations was driven by the domains Honesty-Humility and Emotionality as well as the facets Fairness, Fearfulness, Perfectionism, and Altruism, which exhibited a stronger relation with WD when the personality trait and WD were measured at the same point in time. These results indicate that some HEXACO-WD relations are lower when their measurement is separated in time. The relation of Anxiety with WD differed in direction when one or two measurement points were used, but both relations were again non-significant. The Gentleness facet exhibited a stronger relation with WD when their measurement was separated in time.

### 3.2. Meta-analytic linear regressions

First, we examined the amount of explained variance in WD using all six HEXACO domains in a linear regression ($R^2$ = 0.244). All domains except for Openness to Experience were significant predictors of WD (see Table 3 for regression results). Results from the RWA, however, demonstrated that Honesty-Humility (38.44%) and Conscientiousness (40.11%) contributed most to the explained variance in WD. Agreeableness (9.80%) and Extraversion (7.18%) still contributed some explained variance, whereas the contribution of Openness to Experience (2.97%) and of Emotionality (1.50%) was negligible.

Using all 24 facets,[9] the amount of explained variance in WD

(*footnote continued*)
HEXACO versions and was later removed, correlated positively with WD.

[8] Note that - when comparing correlations of domains and facets with WD - the correlated effects RVE does not take into account the correlated errors that arise from using facets that are nested within domains. A more conservative procedure corrects for this using the formula $r_c = (k*r - 1)/(k - 1)$, in which $r_c$ is the corrected correlation, $r$ the correlation between the domain and its facet, and $k$ the number of facets. We applied this correction to Meng, Rosenthal, and Rubin's (1992) test of difference of correlated correlations using the correlations in Table 7 of the supplementary materials and still obtained significant masking effects for the Honesty-Humility facets.

[9] We did not include the Altruism facet in any of the linear regressions because it is an interstitial facet that loads on different domains and because we wanted to compare the explained variance of domains with their 'own' facets and not with an interstitial facet. When including the Altruism facet, all 25 facets explained 29.8% of the variance in WD, which is 0.8% higher than when using only the 24 facets that comprise the six HEXACO domains.

**Table 3**
Linear regression and relative weights analysis results predicting workplace deviance with the six HEXACO domains.

| | $R^2$ | *B* | *SE* (*B*) | ß | Raw Weight | 95%CI | Relative Weight |
|---|---|---|---|---|---|---|---|
| | 0.244 | | | | | | |
| Intercept | | 5.934 | 0.177 | | | | |
| Honesty-Humility | | −0.373 | 0.028 | −0.263** | 0.094 | 0.076, 0.113 | 38.44 |
| Emotionality | | −0.112 | 0.029 | −0.069** | 0.004 | 0.001, 0.008 | 1.50 |
| Extraversion | | −0.096 | 0.027 | −0.070** | 0.018 | 0.012, 0.025 | 7.18 |
| Agreeableness | | −0.096 | 0.032 | −0.062* | 0.024 | 0.017, 0.033 | 9.80 |
| Conscientiousness | | −0.448 | 0.032 | −0.270** | 0.098 | 0.081, 0.116 | 40.11 |
| Openness to Experience | | −0.031 | 0.027 | −0.021 | 0.007 | 0.004, 0.013 | 2.97 |

*Note.* $N = 2570$; *B* = Unstandardized regression coefficient; *SE* (*B*) = standard error of *B*; ß = standardized beta coefficient; Raw Weight = raw weight of a predictor from RWA; 95%CI = 95% confidence interval for the raw weight; Relative Weight = rescaled relative weight from RWA; * $p < .05$, ** $p > .001$; $F(6, 2563) = 138.193$, $p < .001$.

**Table 4**
Linear regression and relative weights analysis results predicting workplace deviance with all 24 HEXACO facets.

| | $R^2$ | *B* | *SE* (*B*) | ß | Raw Weight | 95% CI | Relative Weight |
|---|---|---|---|---|---|---|---|
| | 0.290 | | | | | | |
| Intercept | | 5.597 | 0.202 | | | | |
| HH sincerity | | −0.077 | 0.025 | −0.065* | 0.020 | 0.014, 0.028 | 7.03 |
| HH fairness | | −0.228 | 0.022 | −0.233** | 0.064 | 0.051, 0.077 | 21.99 |
| HH greed avoidance | | 0.013 | 0.022 | 0.013 | 0.008 | 0.005, 0.012 | 2.70 |
| HH modesty | | −0.064 | 0.028 | −0.051* | 0.017 | 0.010, 0.024 | 5.70 |
| E fearfulness | | −0.026 | 0.024 | −0.023 | 0.002 | 0.001, 0.004 | 0.60 |
| E anxiety | | −0.066 | 0.026 | −0.060* | 0.002 | 0.001, 0.004 | 0.70 |
| E dependence | | −0.023 | 0.025 | −0.019 | 0.001 | 0.001, 0.001 | 0.35 |
| E sentimentality | | −0.024 | 0.027 | −0.019 | 0.005 | 0.002, 0.010 | 1.85 |
| X social self-esteem | | −0.120 | 0.030 | −0.098** | 0.020 | 0.013, 0.028 | 6.86 |
| X social boldness | | 0.008 | 0.025 | 0.008 | 0.002 | 0.002, 0.004 | 0.82 |
| X sociability | | 0.049 | 0.026 | 0.046 | 0.001 | 0.001, 0.002 | 0.49 |
| X liveliness | | −0.003 | 0.031 | −0.003 | 0.009 | 0.006, 0.013 | 3.07 |
| A forgiveness | | 0.036 | 0.024 | 0.032 | 0.002 | 0.001, 0.003 | 0.69 |
| A gentleness | | 0.014 | 0.029 | 0.011 | 0.004 | 0.002, 0.008 | 1.42 |
| A flexibility | | −0.090 | 0.030 | −0.067* | 0.014 | 0.008, 0.020 | 4.67 |
| A patience | | −0.047 | 0.029 | −0.040 | 0.009 | 0.005, 0.014 | 3.10 |
| C organization | | −0.053 | 0.024 | −0.048* | 0.020 | 0.014, 0.027 | 6.81 |
| C diligence | | −0.246 | 0.031 | −0.186** | 0.043 | 0.033, 0.054 | 14.79 |
| C perfectionism | | 0.068 | 0.027 | 0.052* | 0.004 | 0.003, 0.007 | 1.52 |
| C prudence | | −0.125 | 0.029 | −0.099** | 0.033 | 0.024, 0.044 | 11.40 |
| O aesthetic appreciation | | −0.038 | 0.024 | −0.036 | 0.005 | 0.002, 0.009 | 1.77 |
| O inquisitiveness | | 0.019 | 0.023 | 0.018 | 0.002 | 0.001, 0.004 | 0.60 |
| O creativity | | −0.015 | 0.025 | −0.013 | 0.002 | 0.001, 0.005 | 0.84 |
| O unconventionality | | 0.020 | 0.029 | 0.015 | 0.001 | 0.000, 0.001 | 0.24 |

*Note.* The interstitial Altruism facet was excluded here; N = 2570; *B* = Unstandardized regression coefficient; *SE* (*B*) = standard error of *B*; ß = standardized beta coefficient; Raw Weight = raw weight of a predictor from RWA; 95%CI = 95% confidence interval for the raw weight; Relative Weight = rescaled relative weight from RWA; * $p < .05$, ** $p > .001$; $F(24, 2545) = 43.219$, $p < .001$.

increased by 4.6% ($R^2 = 0.290$). Ten facets were significant predictors of WD (see Table 4 for regression results). It is interesting to note that the Perfectionism facet positively predicted WD although the univariate meta-analytic correlation is negative (ρ = −0.224). This likely occurs because of shared variance among the predictors. The other nine facets negatively predicted WD. Results from the RWA demonstrated that Fairness (21.99%), Diligence (14.79%), and Prudence (11.40%) contributed most to the amount of explained variance in WD. The other seven significant facets contributed between 1% and 7% to the amount of explained variance in WD.

We then conducted a stepwise linear regression entering all 24 facets as predictors of WD (see Table 5). This analysis showed that nine facets were significant predictors of WD (i.e., Fairness, Diligence, Prudence, Modesty, Flexibility, Social Self-Esteem, Anxiety, Sincerity, and Fearfulness), while the amount of explained variance in WD decreased only marginally ($R^2 = 0.283$) compared to when all 24 facets were used as predictors of WD ($R^2 = 0.290$). The Fairness facet ($R^2 = 0.187$), which was entered as the first predictor, almost explained as much variance in WD as all six HEXACO domains combined. Diligence, which was entered second ($R^2 = 0.243$, $R^2$ change = 0.056), and Prudence (third; $R^2 = 0.260$, $R^2$ change = 0.017) still added > 1% of explained variance, whereas those facets entered in the fourth and further steps contributed < 1% of additional explained variance. The RWA for the final model including all nine facets as predictors also indicated that Fairness (27.43%), Diligence (20.59%), and Prudence (16.10%) contributed most to the explained variance in WD. Social Self-Esteem (10.43%), Sincerity (8.89%), Modesty (7.89%), and Flexibility (7.04%) also contributed substantially to the explained variance, whereas the contribution of Anxiety (0.87%) and Fearfulness (0.77%) was negligible.

## 4. Discussion

The goals of the present study were to provide meta-analytic effect size estimates for the relations of all HEXACO domains and facets with WD and to estimate which facets explain the maximum amount of variance in WD. The current study contributes a number of important insights to the debate about the usefulness of narrow personality facets when predicting criteria in an organizational context (Ashton, Paunonen, & Lee, 2014; Ones & Viswesvaran, 1996).

**Table 5**
Final stepwise linear regression and relative weights analysis results predicting workplace deviance with a selection of all 24 HEXACO facets.

| | $R^2$ | *B* | *SE* (*B*) | ß | Raw Weight | 95% CI | Relative Weight |
|---|---|---|---|---|---|---|---|
| | 0.283 | | | | | | |
| Intercept | | 5.796 | 0.163 | | | | |
| HH fairness | | −0.224 | 0.021 | −0.229** | 0.078 | 0.063, 0.093 | 27.43 |
| C diligence | | −0.241 | 0.027 | −0.183** | 0.058 | 0.046, 0.072 | 20.59 |
| C prudence | | −0.143 | 0.026 | −0.113** | 0.046 | 0.034, 0.058 | 16.10 |
| HH modesty | | −0.072 | 0.025 | −0.058** | 0.022 | 0.015, 0.032 | 7.89 |
| A flexibility | | −0.097 | 0.025 | −0.073** | 0.020 | 0.013, 0.028 | 7.04 |
| X social self-esteem | | −0.114 | 0.025 | −0.093** | 0.030 | 0.020, 0.040 | 10.43 |
| E anxiety | | −0.076 | 0.023 | −0.069* | 0.003 | 0.002, 0.005 | 0.87 |
| HH sincerity | | −0.075 | 0.024 | −0.064* | 0.025 | 0.018, 0.034 | 8.89 |
| E fearfulness | | −0.044 | 0.022 | −0.039* | 0.002 | 0.001, 0.005 | 0.77 |

*Note.* $N = 2570$; *B* = Unstandardized regression coefficient; *SE* (*B*) = standard error of *B*; ß = standardized beta coefficient; Raw Weight = raw weight of a predictor from RWA; 95%CI = 95% confidence interval for the raw weight; Relative Weight = rescaled relative weight from RWA; * $p < .05$, ** $p > .001$; $F(9, 2560) = 112.343$, $p < .001$.

First, the results highlight the importance of narrow personality facets and generally support the view that narrow facets can outperform broad domains when predicting WD. This occurs because aggregating facets into domains can decrease criterion relations because of the loss of trait-specific but criterion-relevant variance in the prediction process (Paunonen & Ashton, 2001; Paunonen & Nicol, 2001). The current results demonstrate that substantial criterion-relevant variance is lost by aggregating facets to a higher-order domain and that using only HEXACO domains, as was the case in most previous research, reduces the criterion-related validity of personality for WD. For example, the Fairness and Sincerity facets share common variance that predicts WD when aggregated to the domain Honesty-Humility, but both facets also contain facet-specific, non-random variance that is predictive of WD but is lost when only using Honesty-Humility as a predictor of WD. This becomes especially apparent given that the Fairness facet ($\rho = -0.519$) exhibited a stronger meta-analytic correlation with WD than its domain Honesty-Humility ($\rho = -0.420$). These findings are generally in line with and extend conclusions by Ashton et al. (2014), who demonstrated that the unique variance of the Fairness facet predicted delinquent behavior independently of the variance it shared with the Honesty-Humility domain. Similarly, at least one facet of Emotionality and Extraversion demonstrated stronger corrected correlations with WD than the respective domain to which they belong. Social Self-Esteem exhibited a moderately negative correlation with WD ($\rho = -0.248$) while the Extraversion domain to which it belongs correlated less strongly with WD ($\rho = -0.087$), and the Sentimentality facet ($\rho = -0.189$) correlated more strongly with WD than its domain Emotionality ($\rho = -0.091$).

Second, and in line with these findings, all facets combined predicted WD better than all domains combined, demonstrating not only for single domains, but also for all HEXACO domains combined, that important variance is suppressed when using broad domains as predictors. Although we did not find evidence for cancellation effects among the facets of five of the six HEXACO domains, two facets of Openness to Experience (i.e., Aesthetic Appreciation and Unconventionality) cancelled each other out, resulting in a non-significant relation of Openness to Experience with WD. This cancellation effect, however, did not pose a major problem for the optimal prediction of WD given that none of the Openness to Experience facets showed incremental validity for WD beyond facets of other HEXACO domains. The absence of cancellation effects among most of the HEXACO domains suggests that the grouping of HEXACO facets under their respective domain makes sense structurally and is parsimonious when predicting WD. We did, however, observe a masking effect among the facets of Honesty-Humility. Fairness correlated more negatively with WD than Honesty-Humility, and Greed Avoidance and Modesty correlated less negatively with WD than Honesty-Humility. These findings differ notably from the findings for the Big Five by Hastings and O'Neill (2009), who found a cancellation effect for Big Five Extraversion and a masking effect for Neuroticism. It should, however, be noted that these authors did not statistically test for cancellation and masking effects, but just compared the magnitude of the correlations.

Third, the current study also demonstrates that broad domains *can* outperform their constituent facets: Conscientiousness exhibited a stronger corrected correlation with WD than all of its facets, and the Agreeableness facets also did not correlate notably stronger with WD than the Agreeableness domain. For Conscientiousness and Agreeableness, it is the shared variance among the facets that predicts WD. Taken together, the current results demonstrate that domains as well as facets can outperform each other in the prediction of WD. Importantly, WD is predicted best when combining facets from most HEXACO domains (except for the Openness to Experience). Yet, only nine out of all 24 facets are necessary to achieve almost the same amount of explained variance in WD as when using all 24 facets. As such, combining facets from different domains results in maximum accuracy for the prediction of WD (Paunonen, Rothstein, & Jackson, 1999).

Lastly, the current results also demonstrate that the HEXACO traits predict a substantial amount of variance in WD (i.e., 24.4% when using domains and 29.0% when using facets). Importantly, the HEXACO traits predict more variance in WD than the Big Five domains (13.3% using sample-size weighted correlations; Pletzer et al., 2019) or the Dark Triad (16.3%; Boyle et al., 2012), and also more than situational characteristics such as abusive supervision (13.7%; Mackey, Frieder, Brees, & Martinko, 2017) or distributive, interactional, or procedural justice (2.0%, 9.0%, and 7.3%, respectively; Berry et al., 2012, 2007). Thus, the evidence suggests that a selection of HEXACO personality traits provides an important contribution to the prediction of WD.

### 4.1. Practical implications

Generally, the current study indicates that researchers and practitioners can reduce testing times while retaining similar levels of criterion-related validity by relying on a few facets instead of all broad domains when using the HEXACO to predict WD. For example, the Fairness facet, which shows the strongest correlation with WD out of all HEXACO facets, explains almost as much variance as all six HEXACO domains combined. Other facets, such as Sincerity, Flexibility, Prudence, and Diligence, almost attain similar criterion-related validity as their respective domains, and even the interstitial facet Altruism explains similar amounts of variance in WD as all six HEXACO domains combined. When using a combination of facets from different domains, the criterion-related validity for WD increases notably. The reliance on facets as predictors of WD can ultimately lead to higher efficiency and utility, which is crucial for researchers and practitioners who only have limited testing times at their disposal. Furthermore, the reliance on a

few valid predictors may also lead to higher levels of face validity, which, in turn, may increase perceived fairness in selection contexts (Hastings & O'Neill, 2009).

Another important practical implication pertains to the fact that facets contribute differently to the criterion-related validity of their domain. The current results, for example, demonstrate that Fairness correlates stronger with WD than Greed Avoidance does, yet both are weighted equally when using Honesty-Humility as a predictor of WD. Organizations could use this information in personnel selection or when developing interventions to reduce WD by, for example, focusing more on behaviors related to Fairness than Greed Avoidance.

### 4.2. Limitations and future research ideas

The current study meta-analyzed data from available studies about the relations of HEXACO personality domains and facets with WD. A particular strength of this approach lies in the high generalizability of the findings given that results are based on diverse samples across different contexts with different methodologies and that most relations are robust to such variations in study characteristics (see moderator analyses). However, the number of included studies was relatively small for the facet-level relations ($k$ = 9–16), although it is comparable to the number of included correlations in other meta-analyses comparing domain- and facet-level relations (Judge et al., 2013; Woo, Chernyshenko, & Stark, 2014). In addition, all included studies measured WD using self-reports. Only two studies used other-reports of WD (Cohen et al., 2013; Louw et al., 2016), but we included only self-reports in the current meta-analysis to increase generalizability. Although self-reports of WD seem to be valid if participants are guaranteed anonymity and confidentiality of their responses (Bennett & Robinson, 2000), corroborating the current findings with more other-reports or behavioral observations of WD is desirable, especially because it has been found that self-reports correlate stronger with Big Five Conscientiousness and Agreeableness than other-reports of WD (Pletzer et al., 2019). In addition, most of the included studies assessed personality in a low-stakes situation with no incentives to distort responses, which might ultimately reduce the criterion-related validity of personality for WD if applicants want to present themselves favorably. Yet, recent research suggests that HEXACO personality domains still have criterion-related validity in a high-stakes application setting, although the criterion-related validity slightly decreases compared to low-stakes situations (Anglim et al., 2018). Importantly, Anglim et al. (2018) also find that the criterion-related validity of facets is higher than that of domains in both low- and high-stakes situations.

Although we provided meta-analytic correlations of domains and facets that were corrected for unreliability, we did not use corrected correlations in the regression analyses. However, narrow facets usually exhibit lower reliabilities than broad domains which reduces the criterion-related validity of facets more so than that of the domains. Ultimately, the higher criterion-related validity of facets compared to that of domains can therefore be regarded as a conservative estimate. Another limitation of the meta-analysis and of the regression is that we capitalized on chance (e.g., when entering all 24 facets as predictors in the regression). Yet, only three of the nine significant facets (i.e., Anxiety, Sincerity, and Fearfulness) in the stepwise regression would not have been significant at a Bonferroni adjusted significance level. Future research could overcome this by a priori selecting theoretically relevant facets as predictors of WD. This, however, also holds for the publication bias and moderator analyses, which would not be significant at a Bonferroni adjusted significance level. In addition, future research could replicate the current study in the prediction of other behaviors. For example, the HEXACO model, through its addition of Honesty-Humility, has been shown to predict delinquent or criminal behaviors (Van Gelder & De Vries, 2012) and cooperation in social dilemmas (e.g., Hilbig, Zettler, Leist, & Heydasch, 2013). Consequently, future research might like to investigate whether facets outperform domains in the prediction of such behaviors as well.

### 4.3. Conclusion

The results of the current study demonstrate that a) the HEXACO has moderate to high criterion-related validity for WD, b) narrow facets have higher criterion-related validity for WD than broad domains, c) the Honesty-Humility domain masked differential relations between its facets, with the Fairness facet having a significantly stronger relation with WD than Greed Avoidance and Modesty, and d) only the Fairness facet is needed to explain as much variance in WD as all six HEXACO domains combined. Taken together, the results clearly show that HEXACO facets can outperform broad domains in the prediction of WD. The current results therefore support the facet-level measurement of personality when predicting WD (Judge et al., 2013), especially given that this comes at no extra cost. This way, researchers and practitioners can optimize the prediction of WD while retaining a parsimonious description of personality.

## Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.paid.2019.109539.

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